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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,521	04/06/2004	Eugene Napadensky	ARL 03-01	4316

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EXAMINER

ASINOVSKY, OLGA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary	Application No.	Applicant(s)	
	10/828,521	NAPADENSKY ET AL.	
	Examiner	Art Unit	
	Olga Asinovsky	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 12-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The previous examiner of this case was Ana Fortuna, Art Unit 1723.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-11, drawn to a copolymer composition comprising a compound having the formula: A - B, classified in class 525, subclass 353.
 - II. Claims 12-20, drawn to a copolymer composition comprising a compound having the formula: A -B - A', classified in class 525, subclass 333.5; 344; 353.
 - III. Claims 21-22, drawn to a semipermeable membrane comprising a copolymer (A - B), classified in class 210, subclass 500.34.
 - IV. Claim 23, drawn to a fuel cell, classified in class 429, subclass 40.
 - V. Claims 24--25, drawn to an apparel made from a copolymer comprising a diblock copolymer (A - B), classified in class 428, subclass 364.
 - VI. Claims 26-27 and 28-30, drawn to a membrane, a fuel cell and an apparel made from a triblock copolymer (A -B -A'), classified in class 210, subclass 500.27; class 429, subclass 40; class 428, subclass 364.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and Group II are directed to related to distinct copolymers, or copolymer/terpolymer. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e.,

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are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have materially different design. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

3. Inventions of Group III and Group VI are directed to related membranes made of a copolymer including A – B compound, and A – B – A' compound. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have materially different design. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

4. Inventions of Groups I + II and Group IV are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a materially different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case the apparatus, e.g. fuel cell is not use in making the product, e.g. the copolymer composition.

5. Inventions Groups IV, V, II and VI respectively are directed to related apparel and fuel cells. The related inventions are distinct if the (1) the inventions as claimed are

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either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have distinct functions. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

6. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

7. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

8. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

9. During a telephone conversation with Edward Stolarun on 08/28/2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 12-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Upon the election of a composition Claims 1-11, this case has been transferred to other examiner Olga Asinovsky to Art Unit 1711.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al U.S. Patent 6,579,948 in view of Storey et al U.S. Patent 5,039,752 or vice-versa.

Tan discloses a sulfonated block copolymer comprising a polystyrene and polyisobutylene, Abstract, and col. 2, lines 24-25 and 49-51. The polystyrene block is sulfonated such that the resulting sulfonation level is varied from 1 to 70 mole %, col. 4,

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lines 24-26 and 62-65. The sulfonated block copolymer comprises poly(styrene-co-styrene sulfonic acid) segment and polyisobutylene segment, col. 7, lines 13-14 and col. 10, lines 64-66. The sulfonated polystyrene block is readable for being the claimed block A. The polyisobutylene block is readable for being the claimed block B.

Tan does not disclose the claimed cation Z in the RZ segment.

Storey discloses sulfonated elastomeric block copolymer comprising polystyrene block and polyisoprene, wherein the polystyrene is sulfonated. The resulting sulfonated elastomer can be reacted with an alkali metal, amine, amine derivative to form ionic sulfonic acid salts, col. 1, lines 61-64; col. 3, lines 1-18; col. 4, lines 58-63; col. 5, lines 6-15. Fig. 2 shows the outer styrene end that is sulfonated and neutralized to form ionic block at the end of each branch. The outer ionic blocks are polyelectrolyte and said resulting thermoplastic elastomer has a benefit for using as binder matrices for solid, high energy compositions, col. 1, lines 45-50.

Storey does disclose the A – B block copolymer for the present claim 1, and the styrene block is readable in the present claim 2 for being A block. The sulfonated polystyrene is readable in the present claim 5. The neutralization with alkali metal or amines is readable for being a cation in the present claims 1, 4 and 6.

Storey does not disclose the block copolymer comprising polystyrene and polyisobutylene for the present claim 3.

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It would have been obvious to one of ordinary skill in the art to modify the sulfonated block copolymer in Tan invention by neutralizing with alkali metal or amines to form ionic sulfonic acid salt by teaching in Storey invention as a benefit for being a polyelectrolyte for using as a binder for solid, high-energy composition.

It would have been obvious to one of ordinary skill in the art to substitute the polyisoprene segment in the block copolymer in Storey invention with a polyisobutylene block as disclosed in Tan invention since both polyisobutylene and polyisoprene segments have similar elastomeric properties.

13. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al U.S. Patent 6,579,948 in view of Wood et al U.S. Patent 4,086,171.

Tan'948 has been discussed in the paragraph 12 above.

Tan does not disclose the claimed cation Z in the RZ segment.

Wood discloses a sulfonated hydrogenated block copolymer A – B, having a sulfonated polystyrene (A) and hydrogenated conjugated diene block (B). The sulfonated styrene block is neutralized with alkali and alkaline earth metals such as calcium, sodium, potassium, or lithium, col. 5, lines 5-8. The neutralized sulfonated block copolymer has a benefit to improve the stability of the resulting block copolymer than the free acid polymers, col. 5, lines 13-14.

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It would have been obvious to one of ordinary skill in the art to modify the sulfonated block copolymer in Tan invention by neutralization with alkali and alkaline earth metals such as calcium, sodium, potassium, or lithium as disclosed in Wood invention for the purposes to improve the stability of the sulfonated block copolymer in Tan invention, and thereby, obtain the claimed requirement.

Claim Rejections - 35 USC § 112

14. Claims 4 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “pnictogen” is derived from the Greek. The English translation to identify **The Nitrogen group** element is required.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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September 15, 2006

Olga Asinovsky
Examiner
Art Unit 1711


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700